

Gale Tree Consultancy

Tree Condition Report

Bracora, RH13 8DT

June 2025

[redacted]

Contents

			Page Number
	Summary		3
1.0	Introduction		4
2.0	Scope of Report		4
3.0	Results of Inspection		5
4.0	Summary of Results		11
5.0	Conclusion		12
6.0	Recommendations		13
7.0	Appendices		
	Appendix 1	Method of Inspection	14
	Appendix 2	Survey Key	17
	Appendix 3	Beaufort Scale	18



Executive Summary

- A mature Pedunculate oak with a known wood decay fungus on the west side of the stem
- A significant change in the electrical resistance tomograph, (compared to the 2023 result) suggests an increase in dysfunction and decay within the body of the rooting system
- An increase in epicormic growth along the main branching structure, and a decline within the upper crown branching shows an increase in stress levels and a decrease in vascular functionality
- No further investigative work required at this time
- Remove declining branches back to sound wood
- Reassess in two years from the report's date so an appraisal of any increase in the area of dysfunction and decay can be made



1.0 Introduction

1.1 Client and Address

- Mr King, Bracora, Henfield Road, Cowfold, RH13 8DT

1.2 Site Address if Different from the Above

- As above

1.3 Date of Inspection

- 3rd June 2025

1.4 Name of Inspector

- Andrew Gale *Dip Arb L6 (ABC) MICFor M.Arbor.A*

1.5 Our Reference

- TCR/645/25

1.6 Instructions Received

- I have been instructed Mr King to undertake a detailed decay evaluation of a mature tree following the recommendations made in TCR/423/23
- I am to provide my findings in the form of a report detailing any remedial work that may be necessary

2.0 Scope of the Report

- Trees are dynamic living organisms, and their health and condition can be subject to rapid changes, depending upon a number of internal and external factors
- The conclusions and recommendations contained within this report are based on information gained at the time of inspection and are subject to the limitations of the specialist nature of this survey
- Therefore, the likelihood of failure is considered for two years from the reports date based on the information gained on the day of the report and on the assumption that any recommended work will be undertaken in the time frame specified
- It should be noted that even completely sound, healthy trees, can fail given sufficiently severe weather conditions therefore this report is not valid in adverse or unpredictable weather conditions or for any failure due to Force Majeure
- The site has not been checked for any statutory constraints
- The trees were not assessed for wildlife which would include birds or bats



3.0 Results of Inspection

3.1 Tree Species and Dimensions

No.	Species	Scientific Name	H (m)	Crown Spread (m)				Age	Phys. Con.
				N	E	S	W		
//	Pedunculate oak	*Quercus robur*	20.5	10.0	9.0	7.5	9.0	M	Fair/Poor

3.2 General Description

- The tree is located on top of a bank along the west of the property's boundary line and is c.17m above sea level[1] where the topography to the south is relatively the same, to the north ground rises
- The landscape to the south and west is open farmland with the north and east being more built up
- The bank on which the tree is located slopes down to a grassed area and the A283 Henfield Road which runs in a north to south direction
- On the southwest, west and northwest side of the stem, from ground level up to c.40cm, are the attachment points of the decay fungi *Pseudoinonotus dryadeus* (Eiffel Tower fungus); the desiccated fruiting bodies were on the ground directly next to the tree
- Around the attachment point areas, and up to c.70cm, the stem area emitted a change in tone when assessed with a nylon headed sounding mallet
- Epicormic growth[2] was noted on stem sections throughout the crown whilst the upper branching was in notable decline

3.3 Decay Evaluation

- To confirm the extent of any decay on the lower stem, the PiCUS 3 Sonic Tomography (SoT) unit and the PiCUS 2 Electrical Resistance Tomography (ERT) unit were used c.25cm above ground level (north side of the stem) with 22 measuring points (MP). MP 1 was placed at north for reference purposes – please see below:



View from the west side of the tree

Height of assessment c.25cm above ground level on the north side of the stem

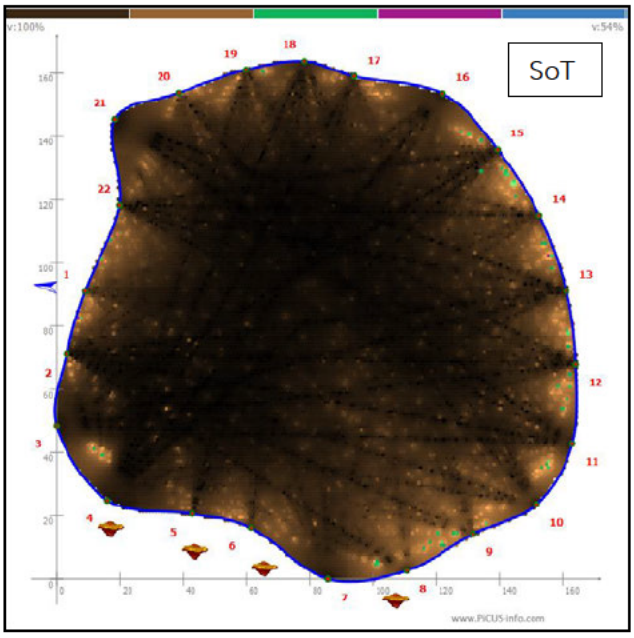
Note the desiccated fallen fruiting bodies of *Pseudoinonotus dryadeus* and the blackened attachment points

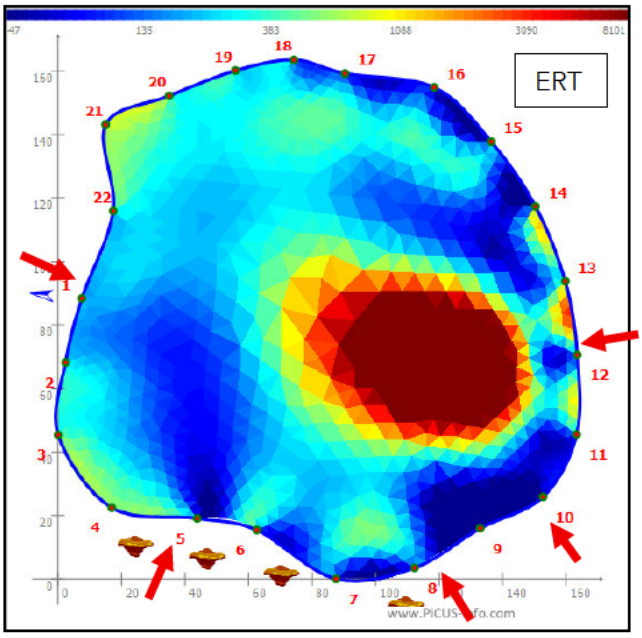
[1] www.calcmaps.com

[2] Epicormic growth – shoots that arise from dormant buds on the tree's main stem or structural branches. Produced readily, depending on species, after pruning or if the tree is decline



- The SoT assessment indicates an area of high sonic velocity, and as such sound wood, across the level of assessment as shown by the brown colour present
- The tomograms have been rotated to match Photo 1 on the previous page, and the bracket fungi symbols added to aid identification

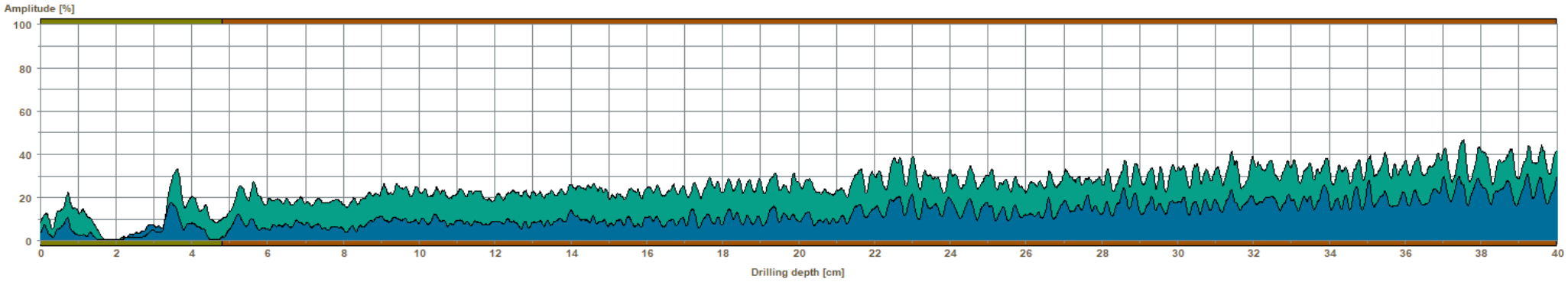




- The ERT assessment shows a decrease in relative resistance as shown by the blue colouration with a further area of reduced electrical resistance as shown by the red colouration
- To confirm the tomogram, the Resi PD400 was used in seven locations
- Four were undertaken at the assessment level, one at c.40cm above ground level and two at ground level – please see red arrows on the ERT result and the drill traces overleaf:



Drill Trace 1 – MP1 angled at -25^0 into the rooting system



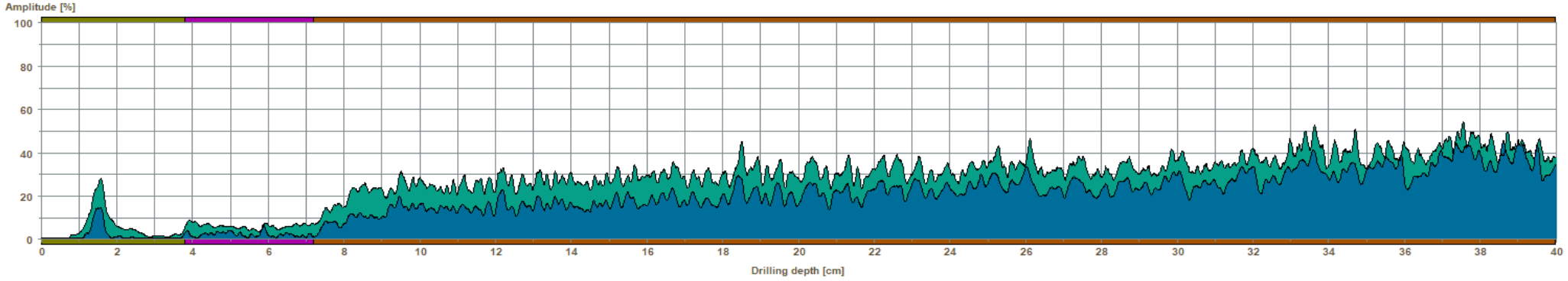
Assessment

From 0,00 cm to 4,80 cm : Bark/Sapwood
From 4,80 cm to 40,00 cm : Soundwood

Comment

MP1

Drill Trace 2 – MP5 at the assessment level



Assessment

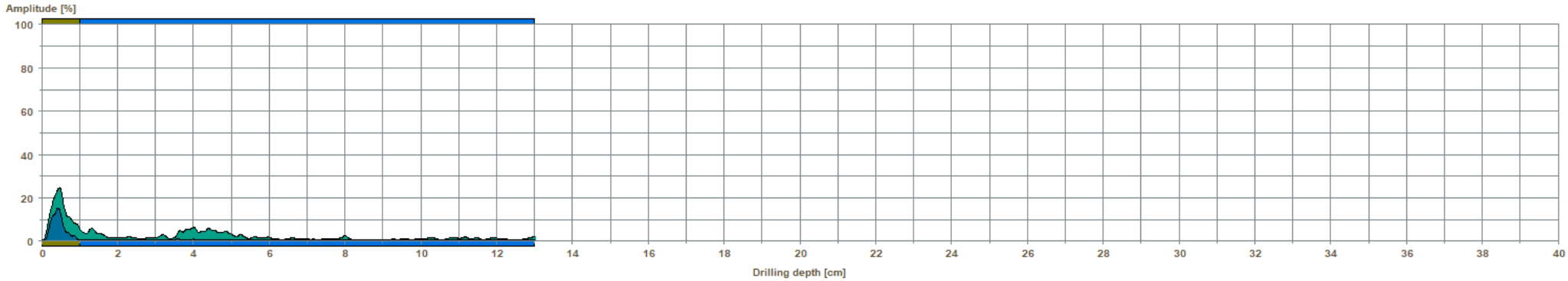
From 0,00 cm to 3,80 cm : Bark/Sapwood
From 3,80 cm to 7,20 cm : Developing Decay
From 7,20 cm to 40,00 cm : Soundwood

Comment

MP5



Drill Trace 3 – MP5 at c.40cm above ground level



Assessment

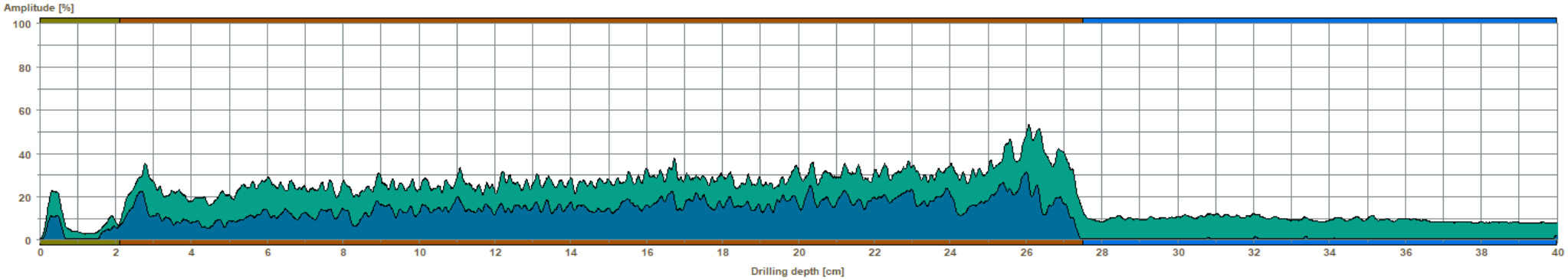
From 0,00 cm to 1,00 cm : Bark/Sapwood
From 1,00 cm to 13,00 cm : Decay/Hollowing

Comment

MP5 - 40cm above grond level

Resi PD400 automatic needle drill retraction feature triggered at c.13cm

Drill Trace 4 – MP8 ground level buttress root at an angle of -25^0 into the rooting system



Assessment

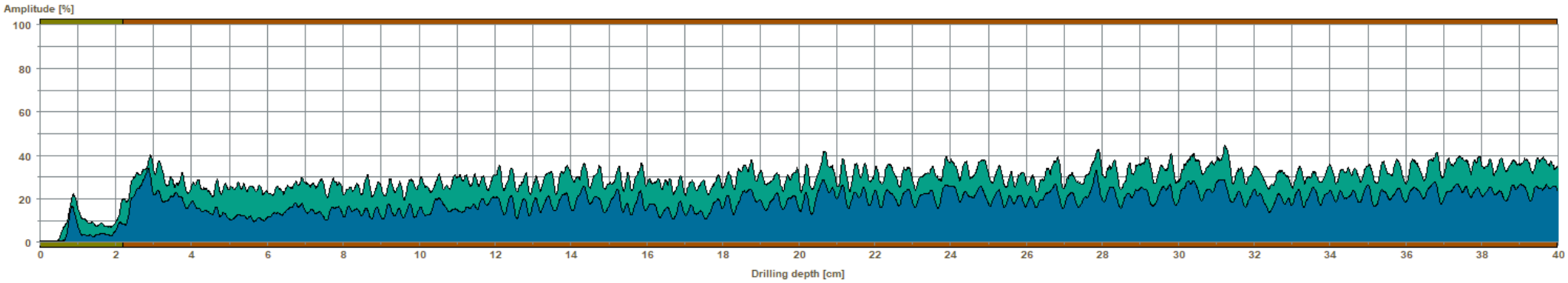
From 0,00 cm to 2,10 cm : Bark/Sapwood
From 2,10 cm to 27,50 cm : Soundwood
From 27,50 cm to 40,00 cm : Decay/Hollowing

Comment

MP8



Drill Trace 5 – MP10 at the assessment level



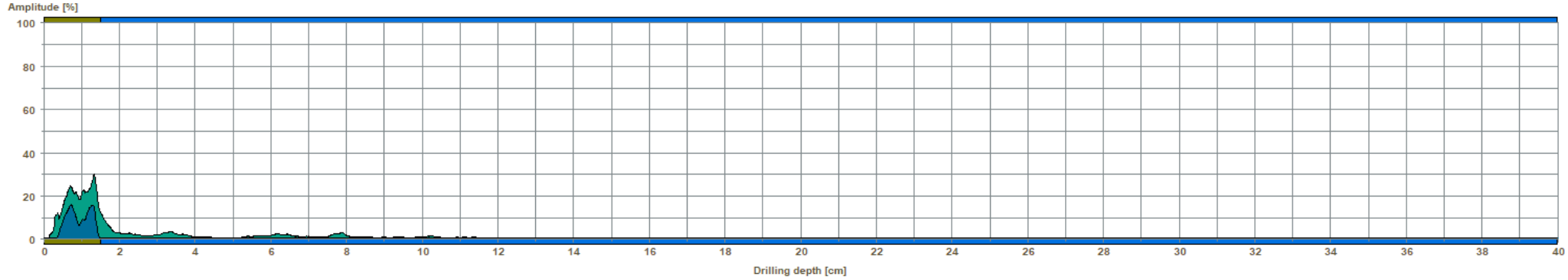
Assessment

From 0,00 cm to 2,20 cm : Bark/Sapwood
From 2,20 cm to 40,00 cm : Soundwood

Comment

MP10

Drill Trace 6 – MP10 ground level buttress root at an angle of -20^0 into the rooting system



Assessment

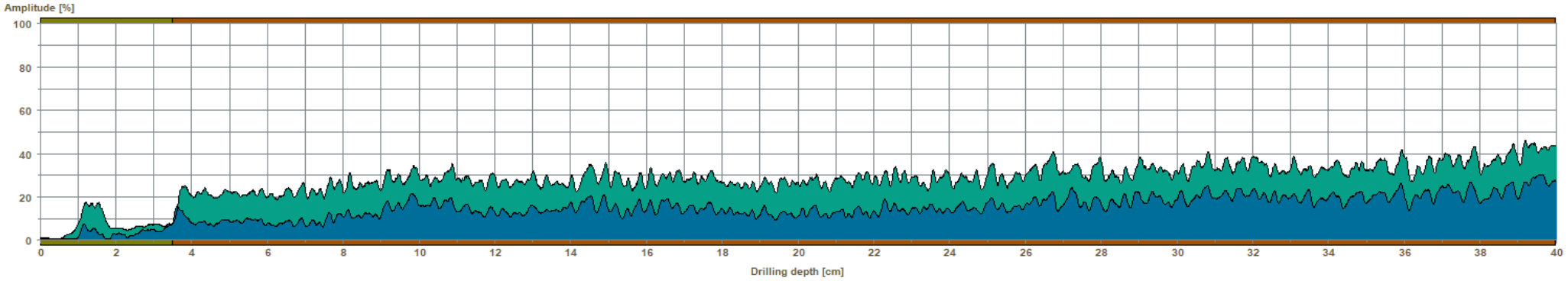
From 0,00 cm to 1,50 cm : Bark/Sapwood
From 1,50 cm to 40,00 cm : Decay/Hollowing

Comment

MP10 gl



Drill Trace 7 – between MP11 and MP121 at the assessment level at an angle of -30^0 into the rooting system



Assessment

From 0,00 cm to 3,50 cm : Bark/Sapwood
From 3,50 cm to 40,00 cm : Soundwood

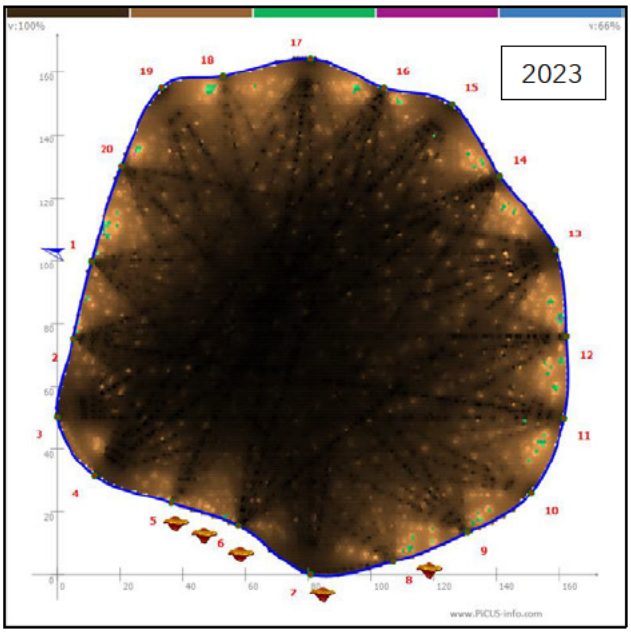
Comment

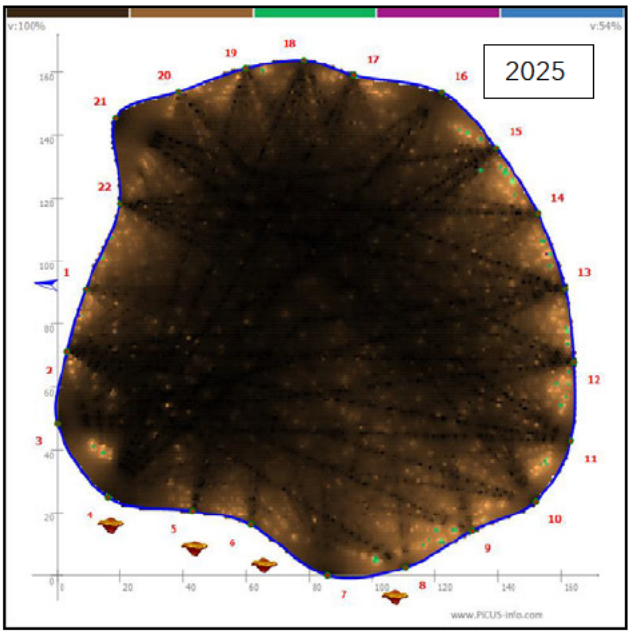
MP11-12



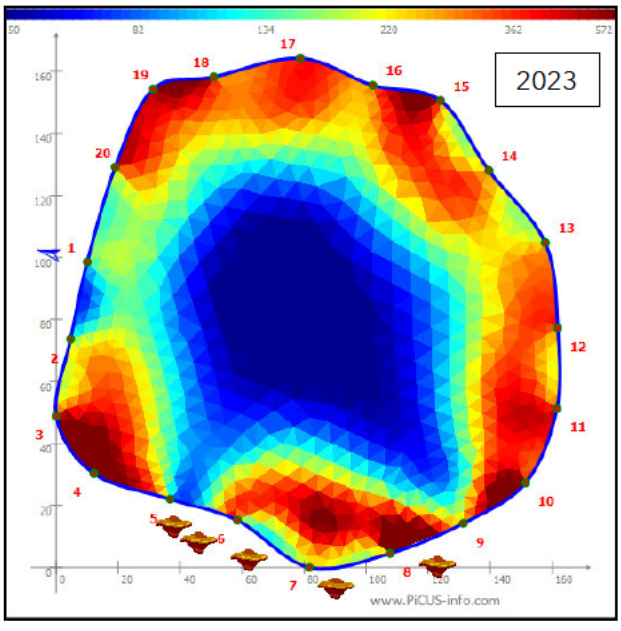
4.0 Summary of Results

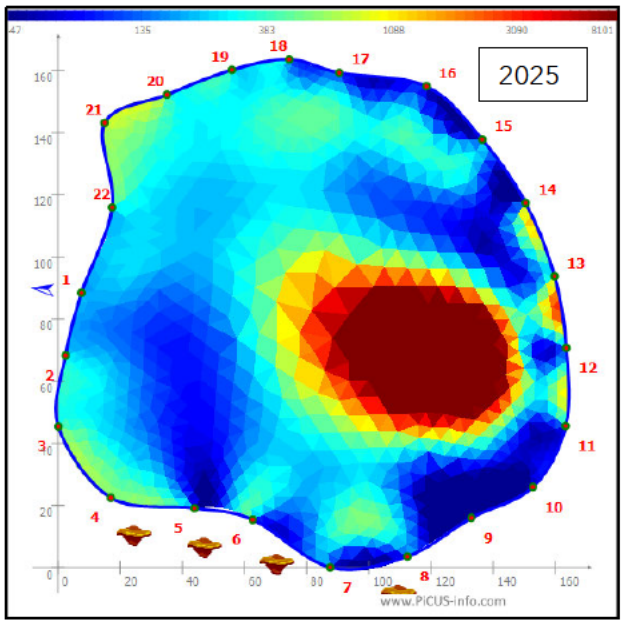
- The decay fungus *Pseudoinonotus dryadeus* forms a selective delignification white rot where the lignin is removed in preference to the cellulose, which eventually leads to hollowing
- The tree can stand for many years on the 'stilts' that are formed by the intact buttress roots, giving it its common name of Eiffel Tower Bracket and when confined to the centre of the tree, failure seldom occurs
- The SoT result shows an area of high sonic velocity across the assessed plane as shown by the brown colouration; this is consistent with the sonic tomogram from 2023 – see below:
- The slight change in shape between the two is due to the inclusion of a further two sensor points





- However, the ERT assessment shows a marked difference between the two assessments – see below:







- The 2023 tomogram shows a typical assessment for a Pedunculate oak, with a red outer ring showing the high electrical resistance and a blue centre caused by a high concentration of several ions, but the 2025 results shows a complete change
- With its ability to rate the wood quality below the SoT assessment plane, the ERT system uses electrical current to assess the composition of the wood structure, picking up the slightest of changes in the water content, cell composition and chemical elements
- The change in the 2025 tomogram is, in my opinion, due to the dysfunction and decay within the main body of the rooting system becoming more active resulting in the lignin breaking down at a faster rate
- Drill Traces 1, 2, 5 and 7 show sound wood along their respective 40cm drill lengths, whilst Drill Traces 3 and 6 both show extensive decay; these match the 2023 assessments
- Compared to the 2023 assessment, Drill Trace 4 shows a greater depth of sound wood. This discrepancy can be explained by the needle drill moving slightly in a different direction compared to the previous assessment, but still shows decay is present
- The increase in the area of dysfunctional and decay is manifesting itself within the upper crown which is showing clear signs of decline
- This, along with the production of epicormic growth on the stem sections, suggests the tree is beginning to struggle with the basic functions of the vascular system where the movement of water and nutrients is becoming compromised
- In response, the production of the epicormic growth is seen as a 'cheap fix fuel' in the form of leaves lower down the stem where the effort is less, compared to producing leaves higher up where the energy to transport the required nutrients is not available

5.0 Conclusion

- The ERT result shows the quality of the wood below the assessment plane is beginning to deteriorate however, the drill trace assessment would suggest that this is currently limited to the southwest and west side of the stem
- The declining crown shows a tree in stress, confirmed by the mass of epicormic growth
- Despite the early indications of dysfunction and decay development, I do not consider the current extent is likely to affect the tree's structural condition and as such, no further investigative work is required at this time
- I recommend that the tree has the declining branches removed back to sound wood, to be undertaken within six months of the reports date
- This will invariably leave truncated branch ends and due to the crown condition, it is unlikely to adhere to BS3998:2010 Tree Work – Recommendations
- I also recommend that the tree undergoes a further detailed decay evaluation in two years from the report's date so an appraisal of any increase in the area of dysfunction and decay can be made



6.0 Recommendations

- Implement the tree work in the time period specified
- Reassess in two years of the report's dates
- This time frame should be shortened in the event:
    - The tree's local environment changes significantly
    - Fruiting bodies emerge from anywhere on the tree
    - After extreme weather events such as:
        - Wind gusts in excess of Force 8 on the Beaufort Scale – see Appendix 3
        - After named extreme weather events
- If the tree is located within a conservation area or subject to a tree preservation order, a formal application to the local planning authority will be required and written consent obtained prior to any work is carried out

This concludes my report.

Signed:

[redacted]

Date: 6th June 2025

Arboricultural ASSOCIATION
Professional Member



7.0 Appendix 1

Method of Inspection Visual Tree assessment – VTA

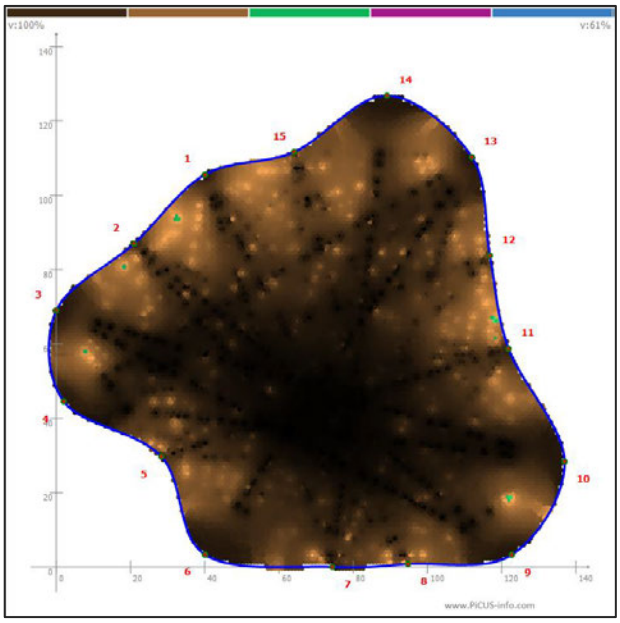
- A nylon headed mallet is used to sound the stem as an initial indication of the presence of decay
- Dull tones indicate areas of lifted and moribund bark, and areas where decay is forming within the main body of the stem
- A thin steel rod is used, where necessary, to assess the depth of any decay in cavities and concavities between buttress roots

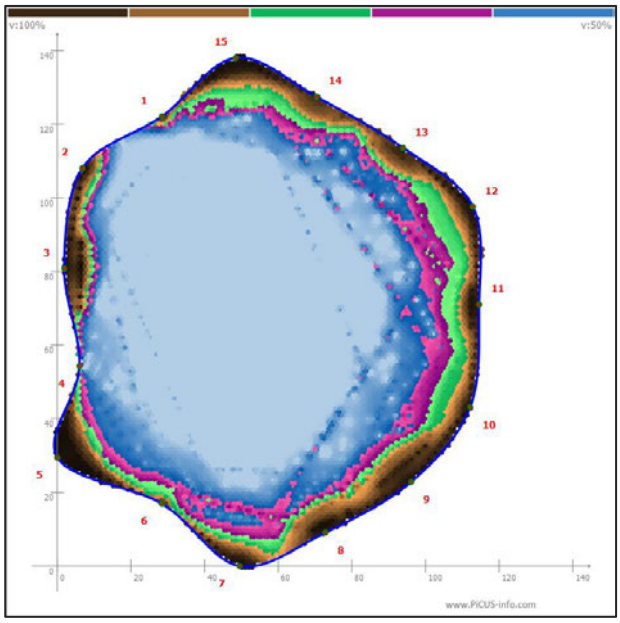
Detailed Decay Evaluation

- PiCUS 3 Sonic Tomography (SoT) unit uses the relative velocity of sound waves induced across the stem to produce a colour shift image where dark browns represent wood with higher velocities and as such sound wood
- Lower sound speeds caused by decay or hollowing are represented by lighter colours with blue/white indicating significant decay/hollowing
- A representation of the colour differences between sound wood and decaying wood

HIGHERVELOCITYTOLOWERVELOCITY
Indicating
SOUNDWOODTODECAYEDANDHOLLOWINGWOOD

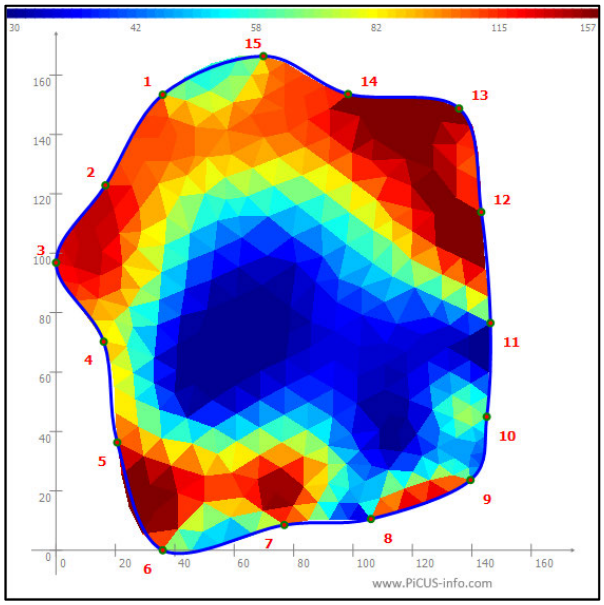
- On the examples below, the tomogram on the left indicates a sound tree and the tomogram on the right, a tree with significant decay or hollowing:





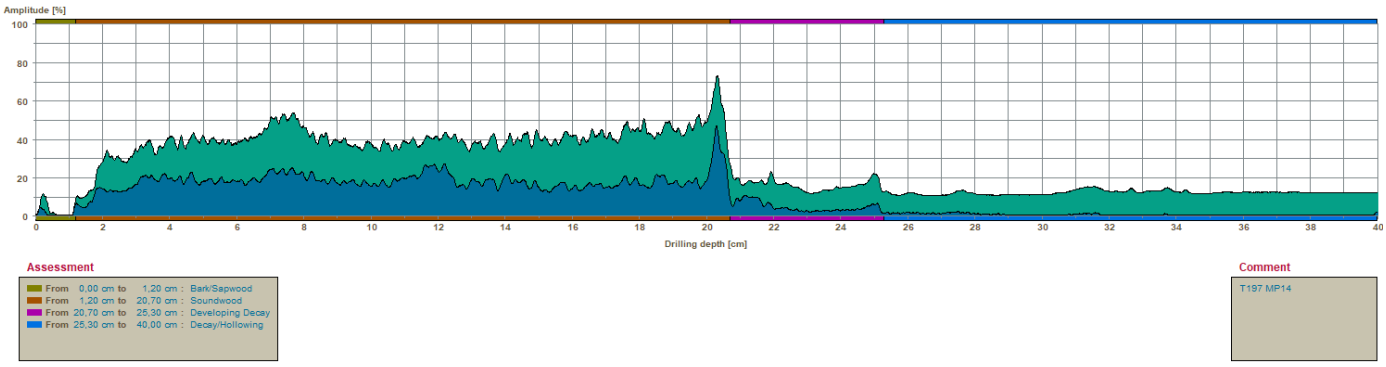


- A further assessment using the PiCUS 2 Electrical Resistance Tomography unit (ERT) can be used



- The PiCUS 2 ERT unit produces an electrical current to assess the condition of the wood within the tree. Changes in the water content, cell composition and chemical elements will change according to the condition of the wood – see to the left
- The blue colouration in the tomogram indicates an area of high conductivity suggesting advancing decay
- The ERT system can test below the assessed plane which helps with the early diagnosis of changes to the wood structure

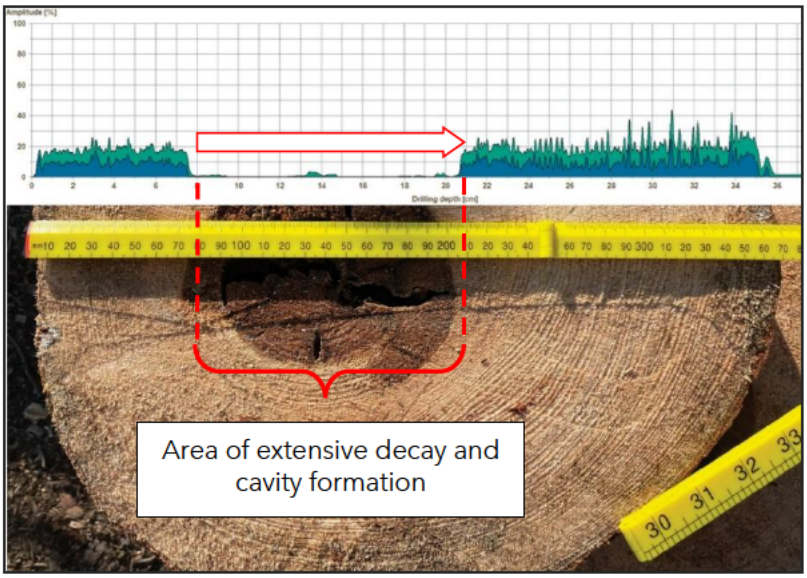
- An IML Resi PD400 microdrill, which measures the resistance of a very fine drill bit to a depth of 400mm, can be used for further confirmation. Significant drops in drilling resistance are indicative of decay or hollowing
- On the example below, sound wood is present to a depth of c.20.7cm before the needle drill enters an area of developing decay; at c.25.3cm the needle drill enters a cavity which extends to the end of the assessment
- Please note, the colours of the Resi Drill Traces have been colour-coded to match those of the PiCUS 3 Sonic Tomography unit



- Historically, Resi drill traces have read from right-to-left due to the configuration of the original machine. However, by using the software available, I have flipped the drill traces to read left-to-right, the more conventional way to read a graph



- On the image below, you can see where the drill entered the area of extensive decay and cavity at c.7.5cm and re-entered the sound wood at c.20.8cm; the drill exited the stem at c.35.4cm





Appendix 2

Survey Key

Tree No.	Relating the tree being assessed	
Species	Common name in English	
Scientific name	The current scientific name will be used	
Height	Measured using a TruPulse digital clinometer and shown in metres (m)	
Crown Spread	Measured using a TruPulse digital clinometer and shown in metres (m)	
Age Class	Young [Y]	recently planted or established within the last 5 years
	Semi Mature [SM]	a well-established youngish tree but far from full maturity
	Early Mature [EM]	long established nearing its full size but not fully mature
	Mature [M]	fully mature tree that has met its full size
	Late Mature [LM]	a fully mature tree that has passed its peak; may exhibit areas of decline
	Veteran [V]	a tree with the physical characteristics of an Ancient tree but is not ancient in years compared to other trees of the same species
	Ancient [A]	a tree that has past full maturity and is old or aged in comparison to other trees of the same species
Physiological Condition	GOOD	No significant physiological problems
	FAIR	Some physiological problems
	POOR	Significant physiological problems
	MORIBUND	In a serious and irreversible decline
	DEAD	Not alive
Tree Structure	Main Stem	The stem, from ground level up to the point at which it bifurcates
	Primary Stem Section (PSS)	The larger stem sections that emanate from the main stem after bifurcation; form the main crown structure
	Secondary Stem Section (SSS)	The stem sections that emanate from the primary stem sections that contribute to the inner crown structure
	Tertiary Stem Section (TSS)	The stem sections that emanate from the secondary stem sections that contribute to the inner and outer crown structure
	Subordinate Branch Structure (SBS)	The smaller diameter branches that help form the inner and outer branch structure; leaf bearing twigs emanate from these to form the crown



Appendix 3

Beaufort Scale

Beaufort Number	Name	Knots	MPH	Effects Observed on Land
0	Calm	Under 1	Under 1	Calm, smoke rises vertically
1	Light Air	1-3	1-3	Direction of wind is shown by smoke drift but not by wind vanes
2	Light Breeze	4-6	4-7	Wind felt on face, leaves rustle, ordinary wind vane moved by wind
3	Gentle Breeze	7-10	8-12	Leaves and small twigs in constant motion, wind extends light flag
4	Moderate Breeze	11-16	13-18	Raises dust and loose paper, small branches are moved
5	Fresh Breeze	17-21	19-24	Small trees in leaf begin to sway, crested wavelets in inland waters
6	Strong Breeze	22-27	25-31	Large branches in motion, whistling heard in telegraph wires, umbrellas used with difficulty
7	Near Gale	28-33	32-38	Whole trees in motion, inconvenience felt in walking against the wind
8	Gale	34-40	39-46	Breaks twigs off trees, generally impedes progress
9	Strong Gale	41-47	47-54	Slight structural damage occurs – chimney pots, slates removed
10	Storm	48-55	55-63	Seldom experienced inland, trees uprooted, considerable structural damage occurs
11	Violent Storm	56-63	64-72	Very rarely experienced, accompanied by widespread damage
12	Hurricane	64 and over	73 and over	